

Children's Acquisition of Demonstrative Pronouns in Mandarin Chinese*

Yi-jing Zhao

National Taiwan Normal University, Linguistic Program,
Taipei, Taiwan
jyjing7@yahoo.com.tw

Abstract. This paper investigates children's comprehension and production of demonstrative pronouns (DPs), 'zhege' (this) and 'nage' (that), in Mandarin Chinese. Subjects are children of ages three, four, five and six. Based on the results of the present experiment, children's developmental stages and the corresponding age grading are provided. Also, the present study incorporates a physical clue into the experiment. The result suggests that in the acquisition of deixis children rely highly on physical context to work out the meaning distinction. In addition, Piaget's egocentrism hypothesis and H. Clark's marking hypothesis are examined in the study. The result seems to support the egocentrism hypothesis. Subjects under the age of six do fail to shift the deictic center when they and the experimenter have a different perspective. As for the marking hypothesis, the study seems to challenge the hypothesis. The result shows that children actually performed better on the marked term 'zhege' than the unmarked member 'nage'.

Keywords: deixis; demonstrative; pronoun; egocentrism; language acquisition.

1. Introduction

Languages are primarily designed for face-to-face communication in daily life and thus can not be separated from context of utterance (Lyons 1977a). All natural languages, hence, have 'gear' to relate the utterance with its context. Deixis is perhaps the most useful gear in reflecting the relationship between language and context. Deictic terms can link the utterance with specific person, time, place, or speech event. They include personal pronouns (e.g. *I*, *you*), demonstratives (e.g. *this*, *that*), and some adverbs indicating place (e.g. *here*, *there*) and time (e.g. *tomorrow*) (Levinson 1983). In the field of language acquisition inquiry, these deictic words are found to emerge early and frequently in children's language. According to literature, early in their very first word stage children can use deictic terms with the form 'ah', 'eh', or 'da' (Lindner 1898, Leopold 1949) and by the age of two and a half, deictic words like 'here', 'there', 'this' and 'that' appear in children's language (Grant 1915; Nice 1915; De Villiers and De Villiers 1974; Rodrigo 2004).

* I am grateful for the crucial comments from the anonymous reviewers, which help sharpen and clarify several main points in this paper. Special thanks go to Professor Chun-Yin Chen for the critical comments and suggestions. Also, I thank my grandfather, Zhu-Mu Zhao, my parents, Su-Ying Chen and Shan-Long Zhao, my brother, Shi-Jie Zhao and my sister Ya-Ling Zhao for the encouragements on all occasions.

One thing worth mentioning is that these deictic terms usually appear along with all kinds of physical expressions. In actual language use, speakers make use of a variety of nonlinguistic clues such as eye gaze and gestures while producing the deictic words. Previous studies also prove that from about age one onwards children can and do utilize the non-linguistic clues of the speaker to identify what is the intended joint attention (Leung and Pheingold 1981; Tomasello, Call, and Gluckman 1997; Moore and Dunham 1995). If this is the case, we should expect that these physical cues should play an important role in children's acquisition of certain deictic terms. This expectation will be examined in the present study.

Children's acquisition of demonstratives in Mandarin Chinese, however, has not been investigated in literature so far as I know. Previous studies relating to children's acquisition of demonstratives usually limit their analyses to western languages (e.g. English or Turkish) and to an adjective-like function (e.g. Make 'this' chicken hop). Also, age-grading of participants in previous studies is usually not broadly-based. To understand children's acquisition of demonstratives and of different functions of demonstratives, more studies are required. The purpose of this study, hence, is to investigate children's acquisition of proximal demonstrative 'zhege' (this) and distal demonstrative 'nage' (that) in Mandarin Chinese. The focus will be on the pronominal function which the two words are found to serve in Chinese. Four age groups ranging from three to six years old are involved in the study. Five research questions will be addressed in the present study: (1) How do children work out the meaning of DPs? (2) Can H. Clark's (1973) marking hypothesis be applied to children's acquisition of DPs? (3) What are the developmental stages and the corresponding age grading of performance? (4) Does Piaget's (1926) egocentrism hypothesis do exist? (5) Is there any age effect in children's comprehension and production of these DPs?

Following this section, section 2 will provide some basic properties of demonstratives in Mandarin Chinese. Section 3 offers an issue review of relevant theories and works on which the analysis and discussion are based. Section 4 is the methodology. Section 5 is a combination of results and general discussion. Section 6 concludes the finding and reveals some limitations.

2. Properties of Chinese demonstrative pronouns

This section illustrates some basic properties of demonstrative pronouns (DPs) 'zhege' (this) and 'nage' (that) in Mandarin Chinese. In literature, a spatial distinction is often used to differentiate between 'zhege' and 'nage' in Mandarin Chinese. Generally speaking, 'zhege' is defined as a proximal DP whose major function is to indicate a referent near the speaker while 'nage' is a distal one used to refer to an object far away from the speaker:

(1) wo yao chi zhe-ge
I want eat this-CL
 'I want to eat this.'

(2) wo yao chi na-ge
I want eat that-CL
 'I want to eat that.'

This spatial distinction has been recognized in works such as Chao (1968) and Cheng (1989). Chao glosses 'zhege' and 'nage' as demonstrative-measure compounds used to refer to an object either proximal ('zhege') or distal ('nage') to the speaker. Cheng makes similar remarks on the two DPs.

In general, to master demonstrative pronouns 'zhege' and 'nage' in Mandarin Chinese, children at least have to learn two things: (1) the speaker is the deictic center and (2) the proximity distinction is a major contrast between the pair.

3. Literature review

3.1. Piaget's egocentrism hypothesis (1926)

The egocentrism hypothesis is first proposed by Piaget. According to Piaget (1926, 1928, 1929, 1956, 1958), children think in an ego-centric way up to the age of 7. That is, young children believe that they themselves are the center of the universe, and that all the others think in the same way like them. Thus, they fail to adopt points of view other than their own. The mastery of deictic terms, however, requires children to incorporate interlocutors' viewpoint into consideration. That is to say, they have to know that the speaker is the deictic center. If children do think in an ego-centric way, they may have difficulty in shifting the deictic center. This hypothesis has been received a wide range of discussion in the literature. Some studies prove that egocentrism do exist in children's minds. Webb and Abrahamson (1975) examine children's comprehension of some deictic pairs and the result shows that children perform better when their perspective is the same as the experimenter, suggesting that egocentrism may be a central factor in the experiment. Clark and Sengul (1977) argue that in acquiring deictic contrasts, children tend to choose themselves as the deictic center. Other studies, on the other hand, provide evidence to challenge the egocentric view. In De Villiers and De Villiers' (1974) study, they conclude that at the age of 3 or 4 years old, children are capable of adopting speaker as a point of reference in the comprehension and production of certain deictic terms. These studies show that the notion of egocentrism is still a controversial one and more researches are required to provide additional tests for the validity of the hypothesis.

3.2. H. Clark's marking hypothesis (1973)

The marking hypothesis is established in H. Clark's (1973) study which states that an unmarked member of a pair will be acquired before a marked one. For spatial demonstratives, 'that' is often identified as the unmarked term of the pair 'this' and 'that' (Kuroda 1968; H. Clark 1973). The prediction that 'that' will be learned earlier than 'this' then follows. This hypothesis is still under examination. Donaldson and Wales (1970) study children's acquisition of certain relation terms. Their results support the marking hypothesis in which the positive terms of word pairs are learned first by subjects. A similar result is obtained in De Villiers & de Villiers's (1974) study. Generally speaking, subjects in their study did better on distal terms than on proximal ones. Opposite results, however, are demonstrated in the following researches. As shown in Webb and Abrahamson's (1975) experiments, children actually perform better on the word 'this' than 'that'. Kuczaj & Maratsos (1975) argue that children demonstrate no difference in their comprehension of 'front' and 'back'. Tanz (1980) also obtains an opposite result in observing children's acquisition of 'far' and 'close'. She illustrates that the marked member, 'close', appears to be acquired earlier than 'far'. The controversy over this issue suggests that more researches are needed to examine the legitimacy of this hypothesis.

3.3. Children's acquisition of demonstratives in previous studies

Children's acquisition of demonstratives is a prevalent topic in linguistic inquiry. To gain a complete understanding of children's acquisition of demonstratives, scholars conduct various kinds of experiments. These experiments do help readers to grasp a general concept on this issue. Webb and Abrahamson (1975), for example, investigate children's use of 'this' and 'that', and propose that children first learn the proximity distinction between the two words and then learn that the speaker is the point of reference. Later, Clark and Sengul (1977) argue that in acquiring deictic contrasts, children go through three phases: from 'No Contrast' through 'Partial Contrast' to 'Full Contrast'. Recently, Kuntay et al. (2006) explore children's acquisition of Turkish demonstrative system which necessarily encodes both proximity distinction and the addressee's visual attention (present or absent on the referent), and reveal that the ability to take the hearer's visual attention into consideration during conversation is not

obtained even by the age of six. The aforementioned studies, however, suffer from some limitations. These studies are all about western languages (e.g. English and Turkish) and their major concern is the adjective like usage of demonstratives (e.g. Pick up ‘this’ candy). Moreover, the age range of subjects participated in these researches is not broadly-based. To get a full understanding of children’s acquisition of versatile usages of demonstratives, more studies are required. The investigation of children’s acquisition of demonstrative pronouns in Mandarin Chinese, hence, aims to supplement the limitations of previous studies.

4. Method

4.1. Subjects

The participants were eight nursery school children in Taipei city. The choice of the participants was based on previous studies. It is generally held that deictic words like *this* and *that* are usually present by the age of two and a half (Grant 1915; Nice 1915; Rodrigo 2004) and not until the age of six or seven can children demonstrate adult-like competence in their use of demonstratives (Clark and Sengul 1977; Kuntay 2006). To examine children’s developmental stages and age differences in their use of DPs, eight children aged between three and six were chosen. They were divided into four age groups, each containing two children (n=2): Group 1 three-year-olds, Group 2 four-year-olds, Group 3 five-year-olds, and Group 4 six-year-olds. All the participants were monolingual Mandarin Chinese speakers and all were individually tested in a quiet classroom at their schools.

4.2. Comprehension task

4.2.1. Stimuli

The stimuli included twelve sentences: four with the word ‘zhege’, four with the word ‘nage’, and four fillers. The testing order of these sentences was randomized in the task.

4.2.2. Materials

Two identical small cartons, one with candies inside and the other with cookies, and 12 puppets were used to test children’s comprehension of DPs. The 12 puppets were animals familiar to children, for instance, monkey, bear, and koala.

4.2.3. Procedure

The task was composed of two trials, one with the experimenter sitting beside the child in front of a desk (the same perspective trial), and the other with the experimenter sitting at the opposite side of the desk (the different perspective trial). On the desk, there were two identical cartons, one with candies and the other with cookies; the candy carton was placed nearer the child’s side of the desk, and the other nearer the opposite side of the desk. Each trial required children to make a two-alternative, forced-choice decision between candy and cookie. The child first received six testing sentences (randomized order) in the same perspective trial, two of ‘zhege’ (one with a non-linguistic cue and the other without), two of ‘nage’ (with or without a non-linguistic cue) and two fillers, and then s/he received the same six sentences in the different perspective trial. To start the experiment, the experimenter first explained to the child that they were to play a role-play game in which the child had to pick up either candy or cookie to testing sentences like ‘我要買這個’ (I want to buy this) or ‘我要買那個’ (I want to buy that) (see Table 1). Notice that if the testing sentence is the one with a non-linguistic cue, the experimenter will give a clear eye gaze at the correct object; if it is the one without a non-linguistic cue, the experimenter will look directly at the child, avoiding any gestural clues or eye-gazing. As shown in Figure 1, to start the task, the experimenter first sat at position 1 (the

same perspective trial) and then after the same perspective trial, the experimenter moved to position 2 to begin the different perspective trial. Note that the two cartons were placed at points equidistant from the child, about an arm's reach, to avoid any possible bias. Children's responses will be recorded by an assistant to the experimenter. Each child was recorded by a digital recorder during the task, respectively.

Table 1: Testing sentences used in the comprehension task.

			Test Sentence	Correct Object	Object chosen
Same perspective trial	With non-linguistic cue	這個	我要買這個 (with eye gaze)	Candy	
		那個	我要買那個 (with eye gaze)	Cookie	
	Without non-linguistic cue	這個	我要買這個 (without eye gaze)	Candy	
		那個	我要買那個 (without eye gaze)	Cookie	
	Filler	我要買糖果			
		我要買餅乾			
Different perspective trial	With non-linguistic cue	這個	我要買這個 (with eye gaze)	Cookie	
		那個	我要買那個 (with eye gaze)	Candy	
	Without non-linguistic cue	這個	我要買這個 (without eye gaze)	Cookie	
		那個	我要買那個 (without eye gaze)	Candy	
	Filler	我要買糖果			
		我要買餅乾			

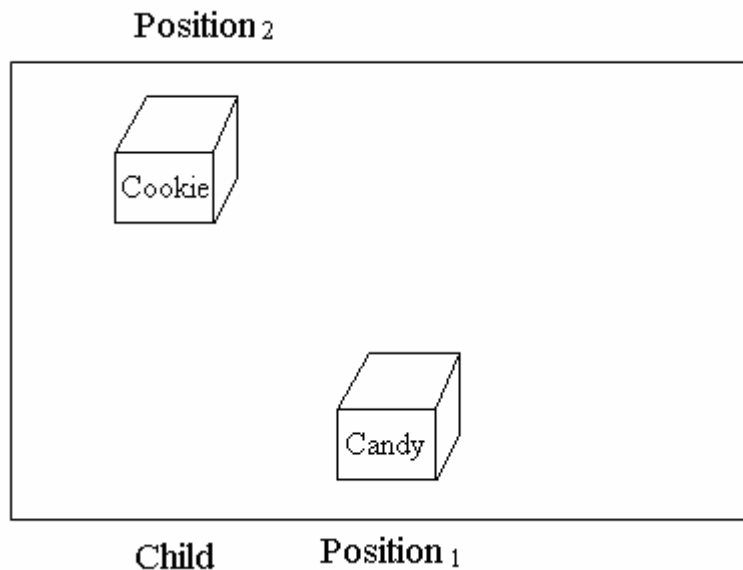


Figure 1: Situation used in the comprehension task.

5. Results and discussion

This section provides detailed results and general discussion of the experiment in the order of the research questions. Note that one subject in Group 2 was dropped in the experiment because she seems to always choose her preferred snack but not the one required by the experimenter, causing the inconsistency of the result.

Mean scores of correct responses with and without eye gaze for each age group were shown in Table 2 and 3, respectively. As can be seen, the existence of a non-linguistic cue does assist children in comprehending these DPs. Compare Table 2 and 3, children achieved a higher score for instructions with a clear eye gaze than for instructions without any physical clues. Table 3 illustrates that without any physical clue children did slightly on ‘zhege’ than ‘nage’, and on same than different perspective trial in general. However, with the aid of a clear eye gaze, as shown in Table 2, children did almost equally well in same and different perspective trials, and in ‘zhege’ and ‘nage’ across the four age groups. Actually the effect of this non-linguistic clue was not apparent on Group 4, and on ‘zhege’ in same perspective trial compared with Table 3; however, if the scores of ‘nage’, of ‘zhege’ in different perspective trial, and of the other three younger groups were considered, the effect of this physical clue was significant.

The high scores in instructions with eye gaze seem to suggest that children depend highly on physical clues to figure out the meanings of deictic terms. This argumentation is not unfamiliar in the linguistic field. Clark (1973) and Donaldson and McGarrigle (1974), though not examining DPs, also argue that children’s beginning assumption toward word meanings depend highly on context. At first, children may not know the precise meanings of these deictic terms and make use of all kinds of non-linguistic clues such as eye gaze and gestures to determine the intended focus of the speaker. Latter, they gradually grasp the impression that ‘zhege’ is used specifically under the context that when the speaker wants to refer to a near object while ‘nage’ is used to refer to a far object. In other words, physical expressions may play a central role in assisting children to work out meanings of certain deictic terms.

To answer our second research question, let’s consider Table 3 again. The scores in Table 3 reveal that children’s performance was slightly better on the proximal term than the distal one especially in same perspective trial. Compare this result with the scores of production task in Table 4. The results seem to correspond to each other. As illustrates in Table 4, children did significantly perform better on ‘zhege’ than ‘nage’.

Both results, hence, seem to challenge H. Clark's marking hypothesis. H. Clark (1973) argued that children should acquire the positive, unmarked member of a word pair first. However, in the present study children actually performed better on 'zhege' than 'nage'. In fact, this hypothesis has been challenged by results of some empirical studies and some alternative explanations have been provided in the literature (Kuczaj and Maratsos, 1975; Clark and Sengul, 1977; Tanz, 1980). In Kuczaj and Maratsos's (1975) study, they propose that the order of acquiring members of a pair of demonstratives may correlate with the degree of shifting of reference of the members, that is, the more shifting, the harder to learn. For 'this' and 'that', they suggest that 'that' shifts reference more than 'this'; this may also account for the better performance on 'zhege' than 'nage' in this study.

Due to a limitation of subject numbers, the overall results for the task were not significant enough to let us judge children's developmental stages. For that, the children were divided into subgroups based on their individual response patterns in instructions without eye gaze. The representation and classification of response patterns and the grouping of children patterned after Clark and Sengul' (1977) study with some modification. Following their study, each child's pattern was represented as a quadruple of ones and zeros. Take the pattern 1001 of Group 1 as an example, the first two digits, 1 and 0, encode the child's reply to 'zhege' and 'nage' in same perspective trial correspondingly. The next two digits, 0 and 1, encode his/her response to 'zhege' and 'nage' in different perspective trial. The pattern 1001, thus, shows that the child was correct on 'zhege' in same perspective trial while on 'nage' in different perspective trial. Based on individual response patterns, Clark and Sengul divided children into three subgroups, No contrast, Partial contrast, and Full contrast, corresponding to their developmental stages.

As shown in Table 5, participants in this study can be assigned to different stages, too. Three subjects were at the No contrast stage. They are all in the younger groups, Group 1 and 2. These subjects seem to consider the two words as pure deictic terms without any meaning contrast. Three subjects were at the Partial contrast stage. Two of them are from Group 3 and one from Group 4. They seem to have a rough idea that the two terms have a distance contrast and hence can differentiate them under some circumstances but not all. The final subject was at the Full contrast stage, having a full control over the two words. The result suggests that in acquiring Chinese DPs, children also go through three successive developmental stages like western children, from No contrast through Partial contrast to Full contrast.

Although the developmental stages were proposed in Clark and Sengul's (1977) study, the corresponding age grading was not clearly provided in their study. The result of this study seems to suggest that children under or equal to the age of four are still in the No contrast stage; from five to six years old, they may pass into the Partial contrast stage and until the age of six or seven they may have gained a full control over these DPs. These successive stages also indicate that the acquisition of deictic meanings is a gradual process.

As for Piaget's egocentrism hypothesis, the result of this study seems to support the hypothesis. Consider children's response patterns shown in Table 5 again.

According to Clark and Sengul (1977), children with the patten 1001, 0110 and 1100 are child-centered while 1011 and 1111 are speak-centered. Based on their assumption, Group 1, 2 and 3 in the present study are all child-centered and Group 4 is speaker-centered. Thus, under the age of six children may still not know that the use of these DPs requires a constant shifting of reference point. The result, hence, suggests that egocentrism do exist in young children's minds (Webb and Abrahamsom, 1975; Clark and Sengul, 1977) and they seem to apply this bias to language learning, too.

As for the age effect, there was no clear evidence shown in the overall comprehension scores. Though Group 4 did perform better than the other three younger groups in instructions without eye gaze, the effect was not clear in the other three groups. However, if the scores of production task (see Table 4) were considered, a patent age effect was revealed. Though the performance of 'zhege' did not reveal any considerable difference across age groups, the scores

of ‘nage’ did suggest a clear age effect. Children’s ability in producing ‘nage’ seems to increase with age. The performance of Group 1 and 2 were the worst; Group 3 did slightly better and Group 4 gained a full control over the production of the two terms. Also, note that children at the No contrast stage were younger than those at the Partial and Full contrast stages; children at the Partial contrast stage were slightly younger than the one at the Full contrast stage (see Table 5). The subjects in the present study, hence, showed a steady improvement with age. Thus, age does improve children’s learning capacity. It is an important factor in learning deictic terms (De Villiers and De Villiers, 1974; Webb and Abrahamson, 1975; Clark and Sengul, 1977).

Table 2: Mean scores of correct responses for instructions with eye gaze in each age group

Age group (n=2)	Same Perspective		Different Perspective	
	zhege	nage	Zhege	Nage
1	1	1	1	1
2	1	1	1	1
3	0.5	1	0.5	1
4	1	1	1	1

Table 3: Mean scores of correct responses for instructions without eye gaze in each age group

Age group (n=2)	Same Perspective		Different Perspective	
	zhege	nage	zhege	nage
1	1	0	0	1
2	0	1	1	0
3	1	1	0	0
4	1	0.5	1	1

Table 4. Mean scores of correct production in each age group

Age group (n=2)	zhege	Nage
1	1	0
2	1	0
3	0.75	0.5
4	1	1

Table 5: The grouping of children according to their response patterns in instructions without eye gaze

	Age Group (n=2)		Response Patterns		
No Contrast	1	A	1001	Child-centered	
		B			
	2	D	0110		
Partial Contrast	3	E	1100		Speaker-centered
		F			
	4	G	1011		
H		1111			

(cf. Clark and Sengul, 1977)

6. Conclusion and limitation

If we compare the present study with the previous works related to demonstratives, some tendencies can be generalized. First, the course of language acquisition is obviously a gradual progression. As proved by many western children, Chinese children also do not learn to use demonstratives all of a sudden. Their control over the use of DPs improves steadily with the increasing of age. The other point is that since the present study reveals that apparently Chinese speaking children do think in an egocentric way just like English speaking children illustrated in earlier works, it seems to be reasonable to argue that egocentrism is probably a universal phenomenon existing in young children's minds and affecting children's language acquisition.

Except for the aforementioned seemingly universal tendencies, some deviation can also be found. Piaget states that egocentrism probably requires at least seven years eliminating. However, the present study illustrates that some children as young as the age of six have already knew how to adopt other people's point of view to comprehend the Chinese DPs. The erasing of the bias in learning languages, hence, may not take such a long time. Six or seven years may be enough for some children at least for some Chinese children to eliminate the bias.

Due to a limitation of time and strength, the total subject numbers are relatively small. The results, thus, may not be reliable enough. Also, still some other common functions which demonstratives can serve such as an anaphoric usage are not investigated in this paper. As a result, further researches are required to gain a comprehensive understanding over children's acquisition of demonstratives.

References

- Bates, E.. 1976. *Language and Context: the Acquisition of Pragmatics*. New York: Academic Press.
- Clark, Eve V.. 1973. What's in a word? On the child's Acquisition of Semantics in his first language. *Cognitive Development and the Acquisition of Language*, ed. T. E. Moore. New York: Academic Press.
- 2003. *First Language Acquisition*. Cambridge: Cambridge University Press.
- Clark, Eve V. and C. J. Sengul. 1977. Strategies in the Acquisition of Deixis. *Journal of Child Language*, 5, 457-75.

- Clark, H.. 1973. Space, Time, Semantics and the Child. *Cognitive Development and the Acquisition of Language*, ed. T. E. Moore. New York: Academic Press.
- De Villiers, Peter A. and Jill G. De Villiers. 1974. On this, that, and the other: nonegocentrism in very young children. *Journal of Experimental Child Psychology*, 18, 438-47.
- Donaldson, M. and R. Wales. 1970. On the acquisition of some relational terms. *Cognition and the Development of Language*, ed. J. R. Hayes. New York: Wiley.
- Donaldson, M. and McGarrigle, J.. 1974. Some clues to the nature of semantic development. *Journal of Child Language*, 1, 185-94
- Fillmore, C.. 1997. *Lectures on Deixis*. Stanford, CA: Center for the Study of Language and Information.
- Franco, F. and G. Butterworth. 1996. Pointing and social awareness: declaring and requesting in the second year. *Journal of Child Language*, 23, 307-36
- Kuczaj II, Stan A. and Michael P. Maratsos. 1975. On the acquisition of *front*, *back*, and *side*. *Child Development*, 46, 202-10.
- Kuntay, Aylin C., Asli Ozyurek, and Max Planck. 2006. Learning to use demonstratives in conversation: what do language specific strategies in Turkish reveal?. *Journal of Child Language*, 33, 303-20.
- Laurendeau, M. and A. Pinard. 1970. *The Development of the Concept of Space in the Child*. New York: International Universities Press.
- Nice, M. M.. 1915. The development of a child's vocabulary in relation to environment. *Pedagogical Seminary*, 22, 35-64
- Piaget, Jean. 1926. *The Language and Thought of the Child*. London: Routledge and Kegan Paul.
- . 1928. *Judgment and Reasoning in the Child*. London: Routledge and Kegan Paul.
- . 1929. *The Child's Concept of the World*.
- Piaget, Jean and Inhelder, B.. 1956. *The Child's Conception of Space*. New York: Norton.
- Inhelder, Barbel and Jean Piaget. 1958. *The Growth of Logical Thinking from Childhood to Adolescence*. Basic Books, Inc., Publishers.
- Rodrigo, Maria Jose, Angela Gonzalez, Manuel de Vega, Mercedes Muneton-Ayala, and Guacimara Rodriguez. 2004. From gestural to verbal deixis: a longitudinal study with Spanish infants and toddlers. *First Language*, 24, 071-90.
- Slobin, D. I.. 1973. Cognitive prerequisites for the development of grammar. *Studies of Child Language Development*, ed. C. A. Ferguson and D. I. Slobin, 175-208. New York: Holt, Rinehart and Winston.
- Tanz, C.. 1980. *Studies in the Acquisition of Deictic terms*. Cambridge: Cambridge University Press.
- Tomasello, [Michael](#) and [Katharina](#) Haberl. 2003. Understanding attention: 12- and 18-month-olds know what is new for other persons. *Developmental Psychology*, 39, 906-12.
- Webb, Pamela A. and Adele A. Abrahamson. 1975. Stages of egocentrism in children's use of 'this' and 'that': a different point of view. *Journal of Child Language*, 3, 349-67.